UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/588,183	08/02/2006	Michael Mahler	3745	6721

7590 10/27/2008

Michael J Striker
Striker Striker & Stenby
103 East Neck Road
Huntington, NY 11743

EXAMINER	
GALT, CASSI J	

ART UNIT	PAPER NUMBER
3662	

MAIL DATE	DELIVERY MODE
10/27/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/588,183	MAHLER ET AL.	
	Examiner	Art Unit	
	CASSI GALT	3662	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-10* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *6/25/2008*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement (IDS) submitted on 6/25/2008 has been considered by the examiner

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 7, and 8 are rejected under 35 U.S.C. 102(b) as being anticipated by Davis (US 5,835,053).

a. Regarding claim 1, Davis teaches **a method for determining the thickness of material by penetrating the material, in particular a method for measuring the thickness of walls, ceilings and floors** (ab. lines 1-4 disclose a roadway ground penetrating radar system for generating a profile of pavement structure showing layer thickness, where a pavement structure may be considered a floor)**, with which a measurement signal (28) in the gigahertz frequency range emitted using a high- frequency transmitter (24) penetrates the material (10) to be investigated at least once and is detected by a high-frequency receiver (38)** (ab. lines 4-8 teach the use of a surface-coupled transmitter antenna and array of receiver antennas, where the transmitter transmits radar signals into the pavement structure; ab. lines 15-17 teach the use of an additional air-launched "horn" antenna assembly; col. 5 lines 22-23 teach that the surface-coupled transmitter operates at 1GHz, and col. 5

lines 36-37 teach that the air-launched assembly transmitter operates at 3GHz), **wherein the thickness (d) of the material (10) is measured via at least two transit-time measurements of the measurement signal performed at various positions (20, 22) of the high-frequency transmitter (24) and/or the high-frequency receiver (34)** (ab. lines 8-15 teach that signal travel times are measured and used to determine layer thickness; ab. lines 21-24 teach that the system can be wheel mounted for advancing along a roadway and that radar data can be synchronized with roadway location, which is here considered the measurement of transit-time at various positions of transmitter and receiver).

b. Regarding claim 7, Davis teaches that **the measurement signal (28) is generated in the gigahertz frequency range using a pulsed-radar method and is launched into the material (10)** (col. 5 lines 43-46 teach that "the system's transmitters emit short pulses 12 of radio wave energy which travel downward into the roadway structure", where the use of gigahertz frequency range signals has already been shown to be taught by Davis (see claim 1 rejection above)).

c. Regarding claim 8, Davis teaches that **one or more measurement frequency/frequencies (28) are used in an interval of 1000 MHz to 5000 MHz, and preferably in an interval of 1500 MHz to 3500 MHz** (col. 5 lines 22-23 teach that the surface-coupled transmitter operates at 1GHz, or 1000 MHz, and col. 5 lines 36-37 teach that the air-launched assembly transmitter operates at 3GHz, or 3000 MHz).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Davis (US 5,835,053) in view of Nix et al. (US 3,815,016).

a. Regarding claim 2, Davis teaches that **the high-frequency transmitter (24) and the high-frequency receiver (38) are operated on a first surface (14) of the material (10)** (ab. lines 4-8 teach that a surface-coupled transmitter antenna and array of receiver antennas are used, and Fig. 2 shows that surface-coupled transmitter 7 and receivers 8 and 9 are operated on surface 6 of the pavement structure). Davis does not teach that **the measurement signal (28) from the high-frequency transmitter (24) is reflected back to the high-frequency receiver (38) by a reflector means (18)**. However, Nix et al. teach that "it is already known, for example in road construction, to arrange metal portions which will be subsequently called "reflectors" underneath the different covering layers, and to measure the distance to the reflector by means of a high frequency gauge" (col. 1 lines 18-23). It would have been obvious to one of ordinary skill in the art to include reflectors between the layers of the pavement structure taught by Davis in order to provide distinct reflections from the different layers to facilitate measurement of layer thickness.

6. Claims 3, 9, and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Davis (US 5,835,053) in view of Nix et al. (US 3,815,016) and further in view of Stump et al. (US 5,904,210).

a. Regarding claim 3, Davis does not teach that **the reflector means (18) includes a transponder (40,140,240,340)**. However, Stump et al. teach a method for detecting the depth of an underground boring tool using a radar probe and radar detection techniques in which the boring tool is provided with a device which generates a specific signal in response to a probe signal (ab. lines 1-6).

Fig. 1 shows how probing and detection unit 28 transmits a probe signal 36 into the ground towards underground boring tool 24, and col. 4 lines 41-43 refer to a cooperative target 20 coupled to underground boring tool 24, which cooperative target is shown in Fig. 16. Col. 4 lines 47-59 teach that the cooperative target allows reflections from the underground boring tool to be readily distinguished from returns from other reflection sources. The cooperative target is here considered a transponder. It would have been obvious to one of ordinary skill in the art to use a transponder as reflector means, as taught by Stump et al., in order to allow reflections from the transponder to be readily distinguished from other reflections.

b. Regarding claim 9: the limitations of claim 9 differ from those of claim 3 in requiring **a transponder (40,140,240,340) capable of being moved relative to this high-frequency measuring device**. The cooperative target 20 taught by Stump et al. moves relative to probing and detection unit 28 as the boring tool to which it is coupled advances. It would have been obvious to one of ordinary skill in the art to provide a movable transponder, as taught by Stump et al., in order to measure layer depth or thickness at different locations.

c. Regarding claim 10, Davis teaches that **the high-frequency measuring device (12) includes a position-detection system (50,52) for recording a path(s)** (ab. lines 21-24 teach that "the system can be wheel mounted for advancing continuously along the roadway and the radar data can be synchronized with roadway location", where identification of roadway location implies the use of a position-detection system for recording a path).

7. Claims 4, 5, and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Davis (US 5,835,053) in view of Mucciardi (US 6,496,136).

a. Regarding claim 4, thickness measuring devices **wherein the high-frequency transmitter (24) and the high-frequency receiver (38) are**

operated in the same device (12), in particular a hand-held device are well-known. For example, Mucciardi teaches a ground penetrating radar system for the inspection of trees wherein the thickness of wood is measured (ab. line 15-16). Fig. 4a shows an embodiment in which transmitter and receiver are combined in a single device 9, and Fig. 2A shows that the device 9 is hand-held. It would have been obvious to one of ordinary skill in the art to modify the invention of Davis by using a hand-held transmitter/receiver device in order to achieve portability and ease of use.

b. Regarding claim 5, Davis teaches that **the measuring device (12) is moved over a surface (14) of the material to record the at least two transit-time measurements** (ab. lines 21-24 teach that "the system can be wheel mounted for advancing continuously along the roadway and the radar data can be synchronized with roadway location", which process involves moving the measuring device over a surface and recording multiple transit-time measurements).

c. Regarding claim 6, Davis teaches that **the displacement path(s) of the measuring device (12) is detected** (ab. lines 21-24 teach that "the system can be wheel mounted for advancing continuously along the roadway and the radar data can be synchronized with roadway location", where identification of roadway location implies the detection of a displacement path).

Response to Arguments

8. Applicant's arguments filed 7/15/2008 have been fully considered but they are not persuasive.

Regarding applicant's argument that Davis fails to disclose performing a plurality of measurements, with which the relative position of the high frequency measuring

device and a transponder are varied relative to one another, examiner would like to point out that this limitation, which appears in claim 9, was not rejected as being anticipated by Davis, by was rejected as being unpatentable over Davis in view of Nix and further in view of Stump.

Regarding applicant's argument that Davis does not disclose a method which determines the thickness of a material from at least two transmit time measurements made at different positions of the high frequency transmitter and/or the high frequency receiver, examiner respectfully disagrees. Davis teaches that signal travel times are measured and used to determine layer thickness (ab. lines 8-15), that the system can be wheel mounted for advancing along a roadway, and that radar data can be synchronized with roadway location (ab. lines 21-24). Collecting radar data at different roadway locations is considered equivalent to measuring the transit-time at various positions of transmitter **and** receiver.

Regarding applicant's argument that Davis teaches a **constant** position of the high frequency transmitter and high frequency receiver, examiner again respectfully disagrees. Davis clearly teaches that the high frequency transmitter and receiver are moved from position to position along a roadway (ab. 21-24).

Regarding applicant's argument that the claimed method requires only a single transmitter and a single receiver, examiner would like to point out that, as currently written, the claims are not limited to a single transmitter and a single receiver.

Regarding applicant's argument that the additional antenna system 4 which is disclosed in Davis does not anticipate or render obvious the present invention because Davis discloses that this system 4 is not alone suitable for achieving a reliable material thickness determination, as indicated at column 8, line 9, examiner thanks applicant but would like to note that the current rejection does not rely on antenna system 4 alone.

Conclusion

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CASSI GALT whose telephone number is (571)270-1469. The examiner can normally be reached on Mon-Fri 7:30AM-5:00PM, Alt. Fri, Eastern Time.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Tarcza can be reached on 571-272-6979. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

10/22/2008

/C. G./
Examiner, Art Unit 3662

/Thomas H. Tarcza/
Supervisory Patent Examiner, Art Unit 3662